



UNITED STATES PATENT AND TRADEMARK OFFICE

CM
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,855	11/08/2005	Andreas Kollmann	DE02 0306 US	7213
24738 7590 05/07/2007 PHILIPS ELECTRONICS NORTH AMERICA CORPORATION INTELLECTUAL PROPERTY & STANDARDS 1109 MCKAY DRIVE, M/S-41SJ SAN JOSE, CA 95131			EXAMINER GOODLEY, JAMES E	
			ART UNIT 2817	PAPER NUMBER
			MAIL DATE 05/07/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,855	Applicant(s) KOLLMANN, ANDREAS	
	Examiner James E. Goodley	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/7/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9, 11-14 and 19 is/are rejected.
- 7) ☒ Claim(s) 6, 10, 15-18, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/7/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Circuit for Generating a High-Frequency Oscillation in a Specified Frequency Band".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. Claim 12 recites, "a fourth reference potential." The omitted elements are: the first through third reference potentials.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what "low quality" refers to. There is no range of values such as for impedance or quality factor to determine what this term means.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by **Wordelman (US 6,169,460)**.

Regarding **claim 1**, line 8 of column 3 to line 31 of column 5 and Figs. 1-3 of Wordelman disclose an oscillator circuit for generating a high-frequency electromagnetic oscillation, comprising:

an amplifier [14] configuration with at least one input [14a] and at least one output [14b],

an oscillator crystal [18] connected to at least one of the outputs of the amplifier configuration,

a bandpass filter configuration [enable band filter trap 16], which is connected, with at least one input [12B], to the oscillator crystal (via amplifier 12) and the at least one output of the amplifier configuration connected to the oscillator crystal, and back coupled, with at least one output [14a], to the input, of the amplifier configuration, wherein, through dimensioning of the amplitude-frequency characteristic (see magnitude plot in Fig. 3) and the phase-frequency characteristic (see phase plot in Fig.

Art Unit: 2817

3) of the bandpass filter configuration as a function of the amplitude-frequency characteristic and the phase-frequency characteristic of the amplifier configuration and the oscillator crystal, the oscillation condition is fulfilled exclusively for a selected harmonic of the oscillator crystal (see lines 23-26 of column 3, lines 46-67 of column 4 and Fig. 3 for the suppression of unwanted harmonics outside of the desired mode f_0), and the high-frequency, electromagnetic oscillation formed by this selected harmonic of the oscillator crystal is available at the output of the bandpass filter configuration (R_{fout} is available via amp 14 and crystal 18, or alternatively one may take the oscillation output anywhere in the oscillation feedback loop).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 7, 8, 11-13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wordelman (US 6,169,460)** in view of **Ward et al. (US 6,696,898)**.

Regarding **claims 2, 3, 11-13 and 19**, Wordelman discloses the oscillator circuit as claimed in claim 1, except, "characterized in that the amplifier configuration is designed with, in each case, at least one pair of at least substantially symmetrical inputs and outputs (differential inputs and outputs) for processing electromagnetic oscillations

(known as differential signals), operated at least substantially symmetrically relative to a first reference potential.”

However, as disclosed in Figs. 12 and 16 and paragraphs 95-104 and 122 in Ward, it is known to utilize a differential oscillator amplifier in a crystal oscillator circuit. Ward discloses symmetrical inputs [Vo_n and V0_p] to respective symmetrical differential outputs [Vo_p, Vo_n] of cross-coupled inverting amplifiers [1226, 1228], being coupled at their source terminals and the drains form the differential outputs. The drains are further coupled through NMOS load paths [1244, 1246] to a second reference potential [Vss]. The inputs and outputs are operated symmetrical relative to a first reference potential [ground, between Vdd and Vss]. Fig. 13 of Ward further provides for a differential to single-ended converter amplifier [1352] that produces an oscillation output that is unbalanced and therefore asymmetric relative to ground.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a differential amplifier, like that suggested by Ward, for the purpose of helping to cancel noise in the oscillation signal.

Regarding **claims 7 and 8**, the device of Wordelman in view of Ward discloses the circuit of claim 3, characterized in that the amplifier configuration comprises an offset compensation device comprising, in each case, a high-pass circuit [1232, 1234 – see paragraphs 99 and 100] between:

each of the differential inputs of the amplifier,

the gate terminals of the NMOS transistors 1244 and 1246 are coupled with this differential input (via 1248 and 1250 and the high pass filters),

the differential output former by the drain of said FET,
wherein the limiting frequency is small as compared with the frequency operating range of the oscillator.

Each of the high-pass circuits contain a capacitor [1236, 1240] coupled with the gates of the FETS (via 1248, 1250) and each filter contains a resistor [1238, 1242], via which the gates of the FETS is coupled with the differential outputs of the amplifier (via 1248, 1250).

Claims 4, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Wordelman (US 6,169,460)* in view of *Ward et al. (US 6,696,898)*, in further view of *Balan et al. (US 6,798,301)*.

Regarding **claims 4, 5 and 9**, the device of Wordelman in view of Ward discloses the circuit of claim 3, but does not disclose that, "the amplifier configuration is coupled with an auxiliary starting circuit, by means of which, during a predetermined period when the oscillator circuit is put into operation, a differential voltage is supplied to the gate terminals of the field effect transistors, coupled at their source terminals, of the differential amplifier circuit comprising the amplifier configuration." The device of Wordelman in view of Ward also does not disclose that, "the amplifier configuration comprises a control-voltage generation stage for generating a control voltage, which is supplied to gate terminals of the output load transistors."

However, Figs. 3 and 4 of Balan discloses a crystal oscillator circuit with a start-up time amplitude control function. The peak detector [22, 52] compares the oscillator

output with a reference potential [V_{target}] and in response, sends a control voltage [20] to set a current from current source [48] to control a bias to oscillation amplifier [50]. There is also a constant current source [76, 78], which aids in peak detection. One of ordinary skill would recognize the implementation of such a peak detection function into the device of Wordelman in view of Ward, by applying a start-up control voltage to the biasing transistors [1244, 1246] in Ward.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a start-up time regulation circuit, such as disclosed by Balan, into the device of Wordelman in view of Ward, for the purpose of regulating output amplitude and start-up time.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Wordelman (US 6,169,460)** in view of **Ward et al. (US 6,696,898)**, in further view of **Burgoon (US 4,378,532)**.

Regarding **claim 14**, the device of Wordelman in view of Ward discloses the circuit of claim 13, but does not disclose that, "the bandpass filter configuration is designed with a cascade connection of at least two bandpass stages of low quality."

However, line 45 of column 3 to line 38 of column 4 and Fig. 1 of Burgoon disclose a crystal oscillator with positive feedback through an inverting amplifier [10] and two bandpass filter stages [14, 16]. One of ordinary skill would recognize the possibility of multi-filter implementation such as disclosed in Burgoon, into the device of Wordelman in view of Ward.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a multi-filter arrangement, such as disclosed by Burgoon, into the device of Wordelman in view of Ward, for the purpose of more finely filtering out-of-band signals from the desired oscillation mode.

Allowable Subject Matter

Claims 6, 10, 15-18 and 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the references of record do not disclose or fairly suggest the claimed structure of the operating point regulating stage, starting circuit, bandpass stages or converter circuit.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

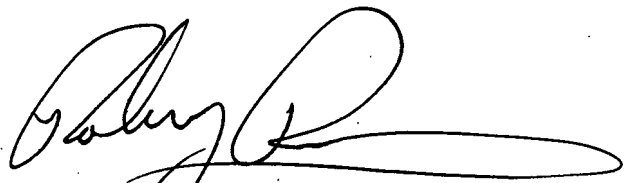
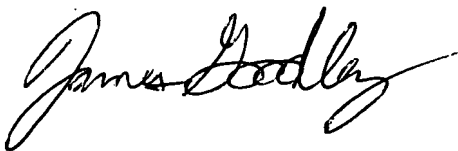
Kobayashi (US 6,778,030) discloses in Fig. 5 a crystal oscillator circuit with a bandpass filter [Zd1] very relevant to the claimed invention.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James E. Goodley whose telephone number is (571)-272-8598. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Robert Pascal
Supervisory Patent Examiner
Technology Center 2800